

WHAT IS CLAIMED IS:

1. A method for manufacturing an electronic component module having a semiconductor bear chip packaged on a wiring board, said method including:

preparing said wiring board including a wiring pattern, a thermosetting resin film covering an electrode area on said

wiring pattern and having insulating particles dispersed and included, and a thermoplastic resin film covering said thermosetting resin film;

pressing a bump of the semiconductor bear chip onto the thermoplastic resin film in a melted state where said thermoplastic resin film is heated and softened, while applying an ultrasonic wave, so that the melted thermoplastic resin film is shoved away by said bump of the semiconductor bear chip and that said bump reaches a surface of said thermosetting resin film;

pressing said bump against said thermosetting resin film by continually applying ultrasonic wave to said bump so that said insulating particles are separated from within the thermosetting resin film, the thermosetting resin film is shaved away by said bump, and said bump makes contact with said electrode area;

ultrasonically bonding said bump and said electrode area by continually applying ultrasonic wave in a state where said

bump and said electrode area are contacted; and

bonding a semiconductor bear chip main body on said wiring board by cooling and solidifying said melted thermoplastic resin.

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2. The method for manufacturing the electronic component module according to claim 1, wherein silicone oxide or aluminum oxide is employed as a material of insulating particles.

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3. The method for manufacturing the electronic component module according to claim 1, wherein tetrafluoroethylene is employed as a material of insulating particles.

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4. The method for manufacturing the electronic component module according to claim 1, wherein the content of insulating particles in the thermosetting resin film is 10 to 30wt% in the 100wt% of resin.

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5. The method for manufacturing the electronic component module according to claim 1, wherein the diameters of insulating particles are 70% or more of the thickness of the thermosetting resin film.

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6. A wiring board for flip chip connecting,
comprising:

a wiring pattern;

a thermosetting resin film covering an electrode area
5 on said wiring pattern and having insulating particles dispersed
and included; and

a thermoplastic resin film covering said thermosetting
resin film.

10 7. The flip chip connecting wiring board according
to claim 6, wherein silicone oxide or aluminum oxide is employed
as a material of said insulating particles.

15 8. The flip chip connecting wiring board according
to claim 6, wherein tetrafluoroethylene is employed as a material
of said insulating particles.

9. The flip chip connecting wiring board according
to claim 6, wherein the content of said insulating particles
20 in the thermosetting resin film is 10 to 30%wt in the 100wt%
of resin.

10. The flip chip connecting wiring board according
to claim 6, wherein the diameters of insulating particles are
25 70% or more of the thickness of the thermosetting resin film.

11. A method of manufacturing a wiring board for flip chip connecting, comprising the steps of:

preparing a base member of a film-like wiring board;

5 laminating a metal foil on said base member; and

forming an etching pattern required wiring pattern on a surface of said metal foil, wherein when a wiring pattern is formed through an etching process, a thermosetting resin having

insulating particles dispersed and included is employed as an

10 etching mask material, and said thermosetting resin is further covered with a thermoplastic resin.

12. The method for manufacturing the flip chip connecting wiring board according to claim 11, wherein silicone

15 oxide or aluminum oxide is employed as a material of said insulating particles.

13. The method for manufacturing the flip chip connecting wiring board according to claim 11, wherein

20 tetrafluoroethylene is employed as a material of said insulating particles.

14. The method for manufacturing the flip chip connecting wiring board according to claim 11, wherein the

25 content of insulating particles in the thermosetting resin film

is 10 to 30%wt in the 100wt% of resin.

15. The method for manufacturing the flip chip connecting wiring board according to claim 11, wherein the
5 diameters of said insulating particles are 70% or more of the thickness of the thermosetting resin film.

16. A method for manufacturing an electromagnetically
readable data carrier including integrally a data carrier main
10 body and an electric component module, said data carrier main body holding a conductor pattern composing an antenna on a film, said electric component module, in which a semiconductor bear chip having a transmitting/receiving circuit and a memory, being
packaged on a wiring pattern of said film, sheet or thin
15 plate-like wiring board, said method having manufacturing method for said electric component module comprising the steps of:

preparing said film, sheet or thin plate-like wiring board having said wiring pattern, a thermosetting resin film covering
20 an electrode area on said wiring pattern and having insulating particles dispersed and included and a thermoplastic resin film covering said thermosetting resin film;

pressing a bump of the semiconductor bear chip onto the thermoplastic resin film in a melted state where said
25 thermoplastic resin film is heated and softened, while applying

a ultrasonic wave, so that the melted thermoplastic resin film is shoved away by said bump of the semiconductor bear chip and that said bump reaches a surface of said thermosetting resin film;

5 pressing said bump against said thermosetting resin film by continually applying ultrasonic wave to said bump so that said insulating particles are separated from within the thermosetting resin film; the thermosetting resin film is shaved away by said bump, and said bump makes contact with said electrode

10 area;

 ultrasonically bonding said bump and said electrode area by continually applying ultrasonic wave in a state where said bump and said electrode area are contacted; and

 bonding a semiconductor bear chip main body on said wiring
15 board by cooling and solidifying said melted thermoplastic resin.

17. The method for manufacturing an
electromagnetically readable data carrier according to claim
20 16, wherein said film-like resin substrate is used for a data
carrier main body.

18. The method for manufacturing the
electromagnetically readable data carrier according to claim
25 16, wherein silicone oxide or aluminum oxide is employed as

a material of insulating particles.

19. The method for manufacturing the
electromagnetically readable data carrier according to claim
5 16, wherein tetrafluoroethylene is employed as a material of
insulating particles.

20. The method for manufacturing the
electromagnetically readable data carrier according to claim
10 16, wherein the content of insulating particles in the
thermosetting resin film is 10 to 30%wt in the 100wt% of resin.

21. The method for manufacturing the
electromagnetically readable data carrier according to claim
15 16, wherein the diameters of insulating particles are 70% or
more of the thickness of the thermosetting resin film.

22. A flip chip connecting wiring board comprising:
a wiring pattern;
20 a first plastic resin film covering an electrode area
on said wiring pattern and having insulating particles dispersed
and included; and
a second thermoplastic resin film covering said first
thermoplastic resin film;
25 wherein the resoftening temperature of said first thermoplastic

resin film is fully higher than that of said second thermoplastic resin film.

23. The method for manufacturing an electronic
5 component module according to claim 1, wherein said insulating particles are uniformly dispersed within said thermosetting resin film.

24. The wiring board for flip chip connecting according
10 to claim 6, wherein said insulating particles are uniformly dispersed within said thermosetting resin film.

25. The method of manufacturing a wiring board for flip
chip connecting according to claim 11, wherein said insulating
15 particles are uniformly dispersed within said thermosetting resin film.

26. The wiring board for flip chip connecting according
to claim 15, wherein said insulating particles are uniformly
20 dispersed within said thermosetting resin film.

27. The wiring board for flip chip connecting according
to claim 22, wherein said insulating particles are uniformly
dispersed within said thermosetting resin film.